Interactive Content Contribution

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ABSTRACT

In this paper a collection of prototype applications developed by VRT –as part of the ICoSOLE project– are described: *Moments*, *Trademark* and *the Wall*. Together, they form the *The Wall of Moments*. The aim is to collect valuable user-generated content, in order to create a near-to live immersive experience for event visitors as well as people who can't attend an event.

Author Keywords

ICoSOLE; VRT; interactive content contribution; the wall of moments; ugc

ACM Classification Keywords

D.2.2 Design Tools and Techniques: User interfaces

INTRODUCTION

Within the ICoSOLE project [5], different (cost-effective) ways of capturing a spatially outspread event are considered. A core research challenge is synchronizing this content in time and space, and this is achieved by using various kinds of metadata.

A second challenge of the ICoSOLE project consists of using this content to create an immersive experience for attendees and people who can't attend the event. These prototypes are a practical implementation of this goal, with a focus on user-generated content. Previous field tests during this project proved that content alone is not enough. Content should be part of a bigger picture, it should tell a story. Therefor, participation from and interaction with content contributors is an absolute must, and event producers need the tools to achieve just that.

THE WALL OF MOMENTS

The Wall of Moments consists of three main prototypes: *Moments*, *Trademark* and *the Wall*.

Moments

Moments is a mobile app which event participants can use to contribute content (photos or videos) to the production crew.

The *Moments* app was the first prototype of *the Wall of Moments* and has been iterated several of times already, which

makes it the most mature of the three. Especially the field trial at Dranouter Festival (during the summer of 2015) yielded valuable insights.

Based on these learnings, we drew three main conclusions, which are outlined below.

- People want instant feedback on their contributed content. They want to know how people value their photo or video and they want control over what happens with it later on.

- Contributing content should be effortlessly: conditions at an event (e.g. a festival) are not optimal, so there's no room for fiddling around complex steps to share content; ideally, it should only be one tap away.

- Part of the test users are very able to contribute interesting, well-thought-out, creative content, but the majority needs more steering: they need to have an idea of which content you're looking for.
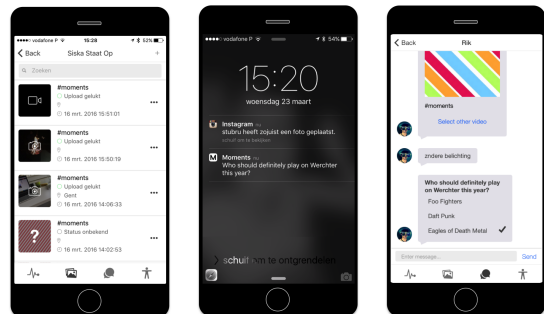

Figure 1. (1) Overview of captured content with according feedback; (2) Push notifications; (3) WhatsApp-like messaging

We took these conclusions and overhauled the prototype in time for the European Open Days event in the autumn of 2015. Now, we're also giving users the results of the video analysis and and feedback based on these results. People are informed when their content is used on the Wall and can opt out of showing it publicly anywhere.

Leading up to the latest event (Science Night), we addressed the second and third conclusion. We added push notifications, to be able to contact test users directly to cover opportunities during an event using UGC. Additionally, we added a WhatsApp-like [6] messaging functionality. This way, the production crew can, for instance, contact an end-user for more information about his/her contribution, request a better quality version and issue polls among users.

Lastly, we added a (Facebook-like) live feed of the event to the app to catch up on what's going on on different spots of the event site.

Trademark

To support the new features of the *Moments* app in the back-end, a new app for the production crew was developed as well.

Firstly, incoming content needs to be managed in a smart way. During busy periods, a lot of content is contributed simultaneously, and it is essential to find the most interesting content as fast as possible. We deliberately choose not to do the filtering of content completely automatically. An algorithm can't interpret content like humans do (yet), and we can't afford to display inappropriate content anywhere. What we can do, however, is using algorithms to sort content in an ingenious way and suggest the best photo or video first. Thus, great content is processed as fast as possible while still leaving the final call to the director.
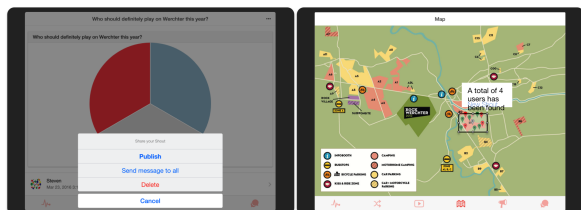

Figure 2. (1) Intelligent assessment of content; (2) Map of active users

Secondly, interactivity plays a big role in this story. Therefor, we ambition a closer contact between the contributors and the production crew. On top of the WhatsApp-based messaging tool, which is also built into *Trademark*, it's possible to contact a (sub)group of the *Moments*' users using push notifications. A crew member can open up a map of the event location and select a certain area to get an overview of the users who are currently there. Subsequently, he can request a photo/video, or request to participate in a poll. Active users are marked in a different color as well.

Lastly, contributed content (photo/video/poll) can be posted directly on the event's social media, or can be sent to *the Wall*.

The Wall

The Wall is a mosaic representation of content, and is displayed on big screens placed at the event. This mosaic –or matrix– is a constantly refreshing feed of the latest and most interesting content.
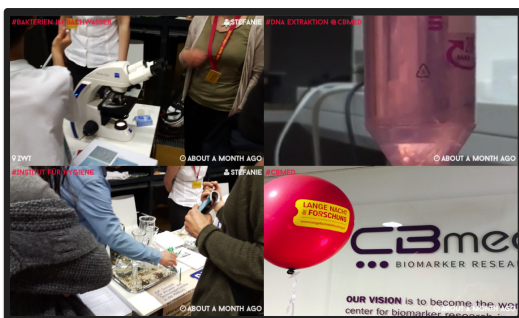

Figure 3. The Wall

TECHNOLOGIES

We developed *the Wall of Moments* prototypes as web applications to support as much (mobile) devices as possible, using HTML5, JavaScript and CSS3. *Moments* and *Trademark* are also wrapped in a native container using Apache Cordova [3], to enable mobile-specific features and better integration. For playback of professional content, a DASH-enabled video player by consortium member Bitmovin (Bitdash [2]) has been integrated. To allow for easy scalability for field trials at large events, we opted to use as many backend services that scale out-of-the-box as possible. Almost every component has been built using scalable cloud components, from the main database (Firebase [4]) to data storage (Amazon S3 [1]).

DEMO CONTENT

The demo uses a selection of content originating from Austrian Science Night, a field test organised in Austria on April 22nd 2016. To illustrate the liveliness when used near-to-live, the prototypes will be showcased live as well.

CONCLUSION AND FURTHER RESEARCH

The Wall of Moments is a range of prototypes in which use cases defined in the ICoSOLE project are implemented. Experiments during the summer of 2016 shall provide further insights into improvements of applications for end users in terms of usability, design and features. We intend to enhance these prototypes further during these field trials by adding even more data sources. For example, we consider attaching proximity sensors to the screens displaying *the Wall*, to personalize what's shown (based on closeby users). This could strengthen event engagement even more, and yield a richer experience both for event visitors and people following at home.

REFERENCES

1. Amazon S3 (Simple Storage Service) is an online file storage web service offered by Amazon Web Services. `https://aws.amazon.com/s3`.

2. Bitdash (by Bitmovin) is a suite of highly optimized MPEG-DASH clients. `https://bitmovin.com/player`.

3. Apache Sereng (formerly PhoneGap) is a popular mobile application development framework originally created by Nitobi. `https://cordova.apache.org`.

4. Firebase is a cloud services provider and backend as a service. `https://firebase.com`.

5. Immersive Coverage of Spatially Outspread Live Events project website. `http://icosole.eu`.

6. WhatsApp Messenger is a proprietary cross-platform, encrypted, instant messaging client for smartphones. `https://whatsapp.com`.